

Amendment to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A locking pin mechanism for variably locking together a rotor and a stator in a vane-type camshaft phaser having a rear cover plate and a front cover plate secured to the stator and enclosing the rotor within the stator, the phaser including means for supplying phase-advance oil and phase-retard oil to respective advance and retard chambers formed between the rotor and stator, the locking pin mechanism comprising:

- a) a straight-sided locking pin disposed in an axial bore in said rotor;
- b) a well formed in said front cover plate for receiving a portion of said locking pin in locking mode;
- c) means for directing said phase-advance oil to said pin for urging said pin from said well, wherein said means for directing said phase-advance oil includes a first channel connecting said well to a supply of said phase-advance oil; and
- d) means for directing said phase-retard oil to said pin for urging said pin from said well, wherein said means for directing said phase-retard oil includes a second channel connecting said well to a supply of said phase-retard oil, and wherein the cross-sectional area of said first and second channels are different.

2. (Original) A mechanism in accordance with Claim 1 further comprising a return spring disposed in said bore for urging said pin into said well.

3. (Original) A mechanism in accordance with Claim 1 further comprising a spring guide disposed in said bore.

4. (Cancelled).

5. (Cancelled).

6. (Previously presented) A mechanism in accordance with Claim 1 wherein said first channel is formed in one of said front cover plate and said rotor.

7. (Cancelled).

8. (Cancelled).

9. (Previously presented) A mechanism in accordance with Claim 1 wherein said second channel is formed in one of said front cover plate and said rotor.

10. (Previously presented) A mechanism in accordance with Claim 1 wherein the cross-sectional area of said second channel is smaller than the cross-sectional area of said first channel.

11. (Currently amended) A locking pin mechanism for variably locking together a rotor and a stator in a vane-type camshaft phaser having a rear cover plate and a front cover plate secured to the stator and enclosing the rotor within the stator, the phaser including means for supplying phase-advance oil and phase-retard oil to respective advance and retard chambers formed between the rotor and stator, the locking pin mechanism comprising:

- a) a straight-sided locking pin disposed in an axial bore in said rotor;
- b) a well formed in said front cover plate for receiving a portion of said locking pin in locking mode;
- c) means for directing at least one of said phase-advance oil and said phase-retard oil to said pin for urging said pin from said well, wherein said means for directing said phase-retard oil includes a channel connecting said well to a supply of said phase-retard oil.

12. (Currently amended) An internal combustion engine, comprising a vane-type camshaft phaser including a locking pin mechanism for variably locking together a rotor and a stator, said phaser having a rear cover plate and a front cover plate secured to said stator and enclosing said rotor within said stator, said phaser including means for supplying phase-advance oil and phase-retard oil to respective

advance and retard chambers formed between said rotor and said stator, wherein said locking pin mechanism includes,

a straight-sided locking pin disposed in an axial bore in said rotor,

a well formed in said front cover plate for receiving a portion of said locking pin in locking mode,

means for directing said phase-advance oil to said pin for urging said pin from said well, wherein said means for directing said phase-advance oil includes a first channel connecting said well to a supply of said phase-advance oil, and

means for directing said phase-retard oil to said pin for urging said pin from said well, wherein said means for directing said phase-retard oil includes a second channel connecting said well to a supply of said phase-retard oil, and wherein the cross-sectional area of said first and second channels are different.

13. (Cancelled).

14. (Cancelled).

15. (Cancelled).

16. (Currently amended) A locking pin mechanism for variably locking together a rotor and a stator in a vane-type camshaft phaser having a rear cover plate and a front cover plate secured to the stator and enclosing the rotor within the stator, the phaser including at least one passage for supplying phase-advance oil

and phase-retard oil to respective advance and retard chambers formed between the rotor and stator, the locking pin mechanism comprising:

- a) a shoulderless locking pin disposed in an axial bore in said rotor;
- b) a well formed in one of said rear cover plate and said front cover plate for receiving a portion of said locking pin in locking mode;
- c) a first channel for directing said phase-advance oil to said pin for urging said pin from said well, wherein said first channel connects said well to a supply of said phase-advance oil; and
- d) a second channel for directing said phase-retard oil to said pin for urging said pin from said well, wherein said second channel connects said well to a supply of said phase-retard oil, and wherein the cross-sectional area of said first and second channels are different.

17. (Previously presented) A mechanism in accordance with Claim 16 wherein said locking pin is straight-sided.

18. (Previously presented) A mechanism in accordance with Claim 16 wherein said locking pin has an end surface, and wherein said phase-advance oil and said phase-retard oil is directed to said end surface.